STRATEGY RESEARCH PROJECT

THE ROLE OF THE CORPS OF ENGINEERS IN HOMELAND SECURITY

BY

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ABSTRACT

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The Army today is moving forward with its Transformation objectives at an increasingly accelerated pace. The Corps of Engineers must not just keep pace with this transformation but get "mentally" ahead of the process so that the Engineer community is poised to be an integral and important component of the Objective force. One of the vital missions of the objective force is Home Land Security. Army Engineers are uniquely configured to support Home Land Security missions, especially considering that 76% of all engineer assets reside in the Reserve Components

This SRP will examine the optimum engineer stationing and distribution (AC/RC) in support of various Homeland Security, natural and security threats. This SRP will determine what type of engineers and where they need to be stationed in the US to provide the necessary response to the various types of national emergencies. All three components of the Corps (Active, Reserve and Guard) will be examined to determine the optimum configuration and stationing to meet state and federal missions.

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PREFACE

Over the last six years I have had the opportunity to work in the Military Assistance to Civil Authority (MACA) area while assigned as a Regional Training Brigade Executive Officer, Training Support Battalion Commander and Senior Army Advisor. In these positions I had the opportunity to be trained as a Defense Coordinating Officer (DCO) and run a Defense Coordinating Element (DCE). This unusual career path has provided me with an insight into how our reserve components and both CONUSAs deal with natural disasters. I have attempted to build upon these experiences and extrapolate them out to how the U.S. Army Corps of Engineers could be organized to support Homeland Security. This paper in no way represents an exact troops to task analysis, but it does reveal what I feel are the important aspects of engineer support to Homeland Security and identifies areas of the nation where we do not have sufficient force structure to support Homeland Security. My hope is that this SRP will be of use to those officers and noncommissioned officers who are tasked with this vital mission.

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THE ROLE OF THE CORPS OF ENGINEERS IN HOMELAND SECURITY

Homeland Security has been a core mission of the Department of Defense and the Army well before the tragic terrorist attacks of September 11, 2001. The National Security Strategy published in December of 2000 directs the Department of Defense "to pursue three modern day goals derived from the preamble's objectives: enhancing security at home and abroad, promoting prosperity, and promoting democracy and human rights".[1] The 2001 Qualitative Defense Review states that defending the nation from attack is the foundation of strategy.[2] To accomplish it's missions at home and abroad the Army has been in the midst of a dramatic transformation. The events of September 11th have only hastened the transformation. To fulfill the mandates given the Army in the National Security Strategy and the Qualitative Defense Review the Army is seeking to find the proper force structure and methodology to ensure the security of its people, infrastructure, and way of life. This is not a new mission but a continuation and refocusing of a mission the Army has had since its inception. The Corps of Engineers has many of the skills needed to be an integral part of the Army's constitutional requirement "to insure Domestic Tranquility and provide for the common defense". [3] However to become an integral part of the Homeland Security Force, the Corps of Engineers must conduct a hard self-evaluation to determine if it is configured and organized in the optimal manner to accomplish all of their missions in support of the nation's homeland security, to the war fighting army, and the nation's infrastructure. To be relevant the Engineers must not just ride the tide of change but lead it. The purpose of this paper is to examine the roles and missions that the Army Corps of Engineers brings to Homeland Security. This SRP will examine the optimum engineer stationing and distribution (AC/RC) in support of various Homeland Security, natural and security threats. A recommendation will be made on what type of engineers and where they need to be stationed in the US to provide engineer troop support to all types of national emergencies. All three components of the Corps (Active, Reserve and Guard) will be examined to determine the optimum configuration and stationing to meet state and federal missions. Recommendations will also be made on the use of Joint forces as well as force structure changes needed in the event there is a shortfall of engineer units to accomplish all of their assigned missions.

To achieve this purpose I will define the Homeland Security mission and how it affects the Army. Then a determination of critical Homeland Security tasks will be conducted followed by an analysis of these tasks. From this analysis a determination of what forces are needed to perform these tasks will be undertaken. Once these missions are defined and force levels

determined, the optimum engineer stationing and distribution (AC/RC) or Joint, will be examined. Command and Control will also be examined to determine where the engineer forces fit into the state and federal response plans and how to best tie into this system.

The Corps has been instrumental in the development of the nations infrastructure and is a key player in our Federal Response Plans. All components of the Corps, military, active, reserve, and civilian employees, bring a wealth of knowledge, and resources to the Homeland Security fight. The Corps is especially well suited for Homeland Security considering it's knowledge of construction, the nation's infrastructure and that 76% of all engineer assets reside in the Reserve Components which are spread throughout the nation.

DEFINITION AND ORGANIZATION OF HOMELAND SECURITY

To determine the Army Engineer's role in Homeland Security, we must first understand what Homeland Security means and what the components of Homeland Security are and how they are inter-related. According to the Homeland Security Strategic Planning Guidance (Draft dated January 8, 2001) and the J7, Homeland Security is defined as " The preparation for, prevention of, deterrence of, preemption of, defense against and response to, aggressions directed towards US territory, sovereignty, domestic population, and infrastructure; as well as crisis management, consequence management, and other domestic civil support." Homeland Security (HLS) has two primary components. These are Homeland Defense (HLD) and Civil Support (CS). The specific tasks required to fulfill the mission of Homeland Security have their source in the definitions of Homeland Security and Civil Support.[4]

A further revision of Homeland Security is " The protection of US territory, sovereignty, domestic population, and critical infrastructure against external threats and aggression" Civil Support (CS) is defined as "DOD support to US civil authorities for domestic emergencies, and for designated law enforcement and other activities". The study of Homeland Security is an emerging doctrine. These definitions were provided by the J7 at the Homeland Security Workshop conducted at Fort Belvoir from 4 to 7 December 2001.[5]

In their book "Preparing the U.S. Army for Homeland Security, Concepts, Issues and Options", Eric V. Larson and John E Peters have developed five Homeland Security Task Areas, these are:

1. Weapons of Mass Destruction (WMD) domestic preparedness (DP) and civil support, ranging from counter proliferation activities to consequence management of incidents involving high explosives (HE), chemical, biological, radiological and nuclear weapons.

2. Continuity of government (COG), i.e., efforts to reestablish at the earliest possible opportunity civilian political and legal authority following a catastrophic incident.
3. Continuity of operations (COOP) of U.S. forces, including force protection against asymmetric homeland attacks during the fort to port sequence, critical infrastructure protection of mission critical facilities and systems, and other activities.
4. Border and coastal defense, the need for which arises from possible threat of introduction into the United States of WMD or other weapons capable of mass casualties and the possibility of large scale refugee flows that could create national security problems and tax available civilian capacity.
5. National Missile Defense.[6]

The Secretary of Defense has broken the responsibility for the Homeland Security mission down along functional lines in the 2001 Unified Command Plan (UCP). The UCP assigns the Commander in Chief (CINC) Joint Forces Command (JFCOM) the responsibility for the land and maritime defense of the continental United States. CINC JFCOM also has the responsibility of providing military assistance to civil authorities (MACA). CINC North American Aerospace Defense Command (NORAD) has responsibility for the aerospace defense of the United States. CINC U.S. Space Command (SPACECOM) has the responsibility for computer network defense. The CINCs of Pacific Command (PACCOM) and Southern Command (SOUTHCOM) are responsible for their geographic areas.[7]

Since the Army Engineers are predominately concerned with the ground defense of the continental United States, JFCOM's guidance bears the greatest relevance for planning. General Kearne, CINC JFCOM has refined the Homeland Security, Homeland Defense and Civil Support definitions into the following bullet "comments" which help define what tasks need to be accomplished to be successful in this overarching mission. General Kearne presented this to the Army War College in November 2001:

•HOMELAND SECURITY (HLS):

Prepare, prevent, deter, defend, and respond to aggression
U.S. territory, sovereignty, domestic population, and infrastructure;
Also crisis and consequence management, and other domestic civil support.

• HOMELAND DEFENSE (HLD):

Protection of U.S. territory, domestic population, and critical infrastructure against external threats and aggression.

•CIVIL SUPPORT (CS):

Support to U.S. civil authorities for natural and manmade domestic emergencies, civil disturbances, and authorized law enforcement activities. [8]

Homeland Defense missions include: the defense of the land, aerospace, and maritime approaches to the U.S.; threat reduction, deterrence and preemption of military attack and missile defenses. Civil Support missions include Chemical, Biological, Radiological, Nuclear, High-Yield Explosives (CBRNE) consequence management, disaster assistance, support for civil disturbances, defense of the national information infrastructure, counter-terrorism activities, counter-drug operations and mass migration incidents. In executing these missions the military will act in support of designated U.S. civil agencies and authorities. [9]

The Engineer forces needed for the Civil Support portion of Homeland Security are those units, which traditionally respond to Military Support to Civil Authority (MACA) missions. According to "Homeland Security of the Engineer Regiment" a briefing conducted for the Engineer Regiment at Fort Leonard Wood, military engineering capabilities required in HLS are: Vertical construction, Horizontal construction, Topographic Engineering, Port Construction Engineering, and Prime Power.[10] These units could provide the necessary construction, debris removal and infrastructure replacement capabilities to perform the engineer tasks for any Civil Support mission

ENGINEER MISSIONS IN HOMELAND SECURITY

The question that must now be answered is what do the civil authorities, federal agencies and CINC JFCOM require of the Corps of Engineers as they set out to accomplish these missions? The Corps of Engineers has the ability to support the overall Homeland Security mission with an inherent three-tiered capability. This consists of three overlapping core capabilities: Intellectual Leadership, Consequence Management and Consequence Mitigation.

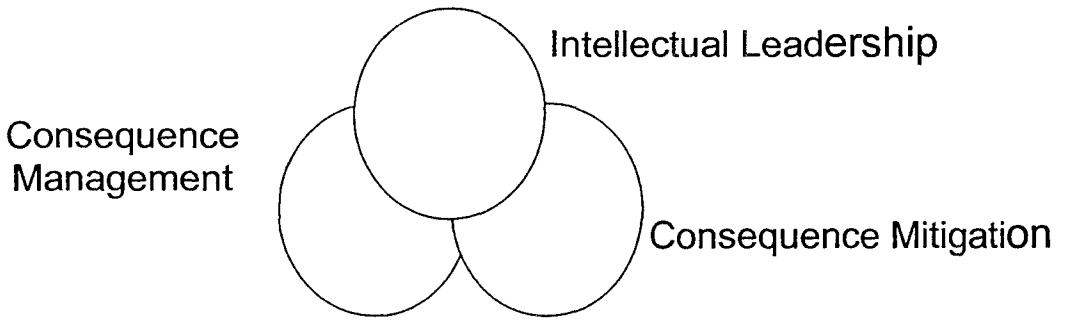

FIGURE 1CORE ENGINEER CAPABILITIES

Intellectual Leadership in the Corps of Engineers is a core capability that the Corps has provided the nation since it's inception. This capability is tied directly to the Corps laboratories and research facilities that have been leading the nation in waterways and dam design, blast proofing of buildings and development of damage resistant building materials and new and innovative building techniques. These laboratories include the Construction Engineering Research Laboratory, the Waterways Experiment Research Laboratory, the United States Army Corps of Engineers (USACE) Cold Regions Research and Engineering Laboratory and the Engineering Center for Lessons Learned.

Consequence Mitigation is the work being done by the Corps at the Engineer Division and District level that identifies critical infrastructure components and then analyzes them to determine whether or not they are survivable or at least resistant to damage from a terrorist attack or natural disaster. The Corps then has the capability to take constructive steps to mitigate or lessen the effects of terrorist attacks or natural disaster. In addition to the Divisions and Districts of USACE, units like the U.S. Army Corps of Engineers Contingency Response Unit, a 37 man Army Reserve unit that has been called to active duty during the current crisis to conduct security assessments of critical infrastructure facilities.[11]

Consequence Management is the work taken to clean up, repair and restore infrastructure and facilities after a terrorist attack or natural disaster takes place. This is the normal Military Support to Civil Authorities (MSCA) work that the Corps of Engineers has traditionally performed after a natural disaster. Typical MSCA missions are security (Infantry), law enforcement (military police), potable water generation and distribution (quartermaster), debris removal, power generation, temporary housing and sanitation and infrastructure assessment (all engineer tasks). The National Guard is well versed and trained to be the core of this vital component of Homeland Security. This is especially true if a chemical or biological weapon is used. A CBR environment may mean that the military with their specialized training and equipment are the only organization that can respond to a WMD attack. The military arm of the Corps of Engineers is well suited to this area because of their specialized training, equipment and history, especially in the reserve components, of providing military support to civil authorities. Examples of high demand troop units would be construction battalions and companies, prime power companies, diving units, fire fighting detachments, and pipeline and port construction companies to name a few.

All three of these core capabilities overlap each other. The efforts taken in Intellectual leadership clearly directly affects Consequence Mitigation by providing new technologies and

materials for use in that area. The advances made in consequence mitigation will lessen the effort required in consequence management.

THE FORCE MODEL

Much work has recently gone into attempting to size the forces required for Homeland Security. The Homeland Security Workshop listed these planning assumptions in their efforts to build a Homeland Security force structure.[12]

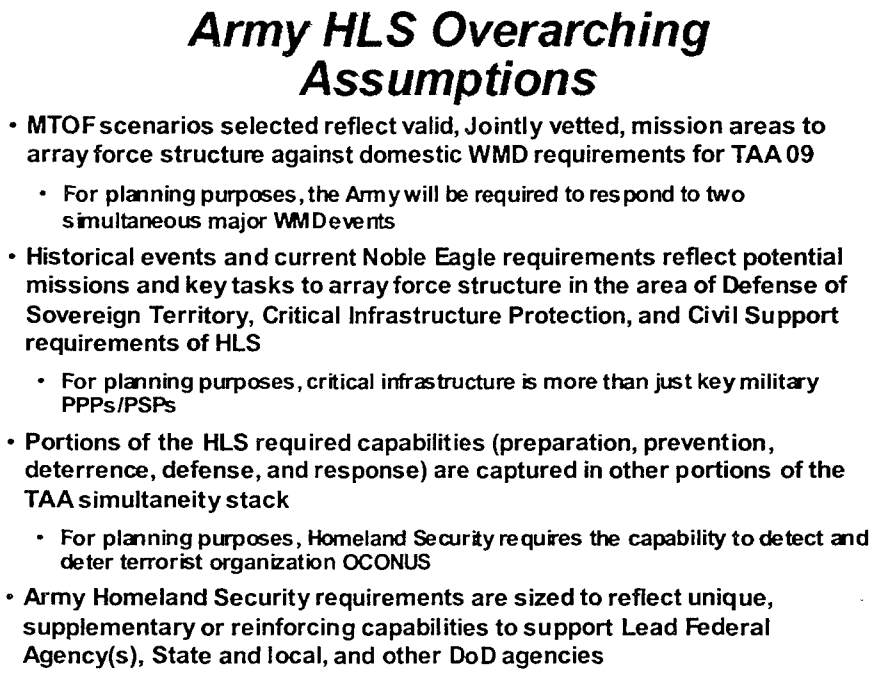

FIGURE 2 HOMELAND SECURITY PLANNING ASSUMPTIONS

These assumptions were used to develop a force-sizing construct. The Maneuver Support Center (MANSCEN) at Fort Leonard Wood, Missouri was part of the Homeland Security Workshop which was conducted at Fort Belvoir, Virginia from 4 to 7 December 2001 and helped in the development of the Engineer portion of this force. In accordance with their planning assumptions the Workshop constructed a force to combat two simultaneous WMD attacks. Their WMD force model is shown in the following diagram:[13]

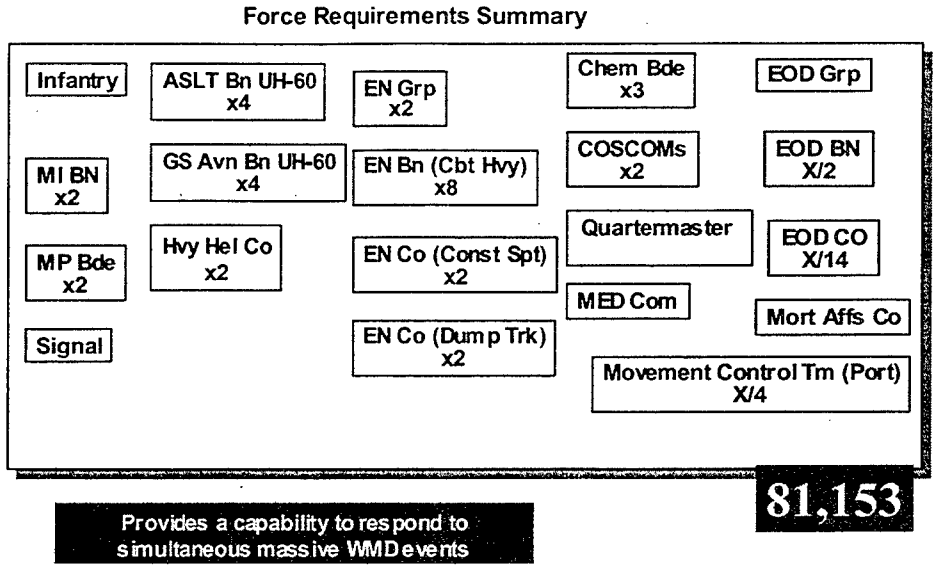

FIGURE 3 HLS WORKSHOP FORCE STURCTURE

The Engineer component of this force consists of 2 Engineer Group Headquarters, 8 Combat Heavy Engineer Battalions, 2 Engineer Construction Support Companies and 2 Engineer Dump Truck Companies.

The Homeland Security Workshop was not working this issue independently. In his March 2001 paper "The Army and Homeland Security: A Strategic Perspective", LTC Antulio J. Echevarria II, from the Strategic Studies Institute, proposes that sizing the force to respond to a 10 Kilo Ton nuclear event would provide an adequately sized force to respond to both a persistent chemical strike and a high yield explosive device. According to Echevarria the following forces are required for Civil Support: four light infantry battalions, five medical companies, three chemical battalions, three engineer construction battalions, three military police companies, four ground transportation battalions, an aviation group, three direct support maintenance battalions and two general support maintenance battalions. LTC Echevarria further states that " a resource baseline capable of addressing 2x10KT events would enable the Army to respond to several incidents such as a 1x15KT or 1x22KT incident or approximately 3x1KT nuclear incidents or three biological or chemical attacks.[14] Therefore, a total engineer force of six engineer construction battalions for the Continental United States is the baseline requirement for Homeland Security according to LTC Echevarria. In a personal interview with LTC Echevarria he revealed that his force-sizing construct was based on work done by RAND and DTRA playbooks, but was not built on any numeric modeling or troops to task analysis. Both of these studies used a basic knowledge of what tasks need to be accomplished and

which types of units had that capability.[15] The types of missions given to engineers in disaster relief will be primarily construction and construction support missions. Typical tasks are debris removal, temporary infrastructure repair, and emergency power and water distribution. Combat Support engineers that constitute Combat Heavy battalions, Combat Support Companies, Combat Support Equipment Companies, Prime Power Detachments, Utilities Detachments and other low-density engineers perform these tasks. What are not needed are Combat Engineers, or Sappers, who are organic to or in support of maneuver forces. By specifying only construction and support engineers for Homeland Security training of the force becomes infinitely simpler. Construction and support engineers have Mission Essential Task Lists (METLs) that adapt with relative ease to the tasks that will be asked of them in a Homeland Security role. Combat Engineers would require extensive additional training and additional equipment augmentation to perform these missions. The additional equipment and construction training would detract seriously from their primary "war fighting" mission of supporting combat arms organizations.

One area that both the Homeland Security Workshop and LTC Echevarria have failed to recognize is the requirement for electrical power in a stricken area. The Army's Prime Power battalion has the ability to bring electrical power to a stricken area quickly. Their unique power generation capabilities would be essential in helping reestablish continuity of government an essential "first task" in any Consequence Management operation. In both of the proposed force structures Engineer Command and Control is addressed in only a very generalist way if at all. A trained and dedicated field engineering staff is critical for not only the Command and Control of engineer troop units assigned to the response but also to the response Task Force Commander. An Engineer Group or Construction Brigade headquarters brings the necessary staff and equipment to manage a myriad of construction related tasks.[16] This engineer C2 cell will be dual tasked, like all engineer commanders and staffs to not only command the engineer troop units but to also provide field engineering expertise to the Response Task Force Commander. There are other engineer units, which should also be apportioned to the Response Task Force. Depending upon the infrastructure of the area being considered. Army Engineer Diving detachments, port construction companies and pipe line companies could be required in a TF dealing with a coastal area or a large sea or river port. A revised model for the engineer contribution of this task force could be based upon the following model:

Proposed HLS Engineer RTF

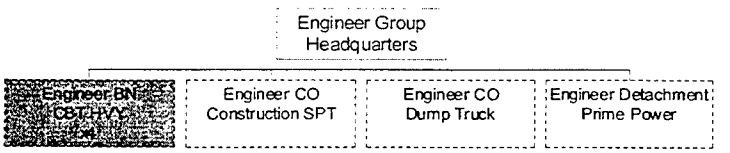

FIGURE 4 REVISED ENGINEER FORCE STRUCTURE

There are only a finite number of engineer units available for apportionment to these Engineer RTFs. The critical assumption that must be made at this time is that once a unit is apportioned to an Engineer RTF for Homeland Security, this becomes their primary mission. This does not mean that these units are not still war traced to other contingencies or that they fall under the command and control of the Engineer RTF for day-to-day operations. The Engineer RTF is an "on call" organization, which only comes into play after a Federal Declaration of Emergency and is tailored to respond to a WMD attack. The normal peacetime training, administration and manning of these units are still the responsibility of their parent units. However, use of these forces, which would detract from the Engineer RTFs ability to conduct operations, must be approved through the CONUSA, FORSCOM and JFCOM.

WHERE SHOULD ENGINEER RTFS BE STATIONED

In the previous portions of this paper a force model was developed to respond to a WMD. Additionally, the HLS planning assumptions called for a capability to respond to two simultaneous WMD incidents. It would be a simple issue if this meant that only two Engineer RTFs were required to support the Homeland Security needs of the nation. However, with a country as vast as the United States it would take considerable time to mobilize and deploy two RTFs to remote areas of the country. Response time is another essential element of Homeland Security that must be examined in determining where these forces need to be stationed. Continuity of Government (COG) and Continuity of Operations (COOP), which were defined in the first portion of this paper, have some specific time standards that have been applied by the Federal Emergency Management Agency (FEMA).[17] FEMA recommends that in cases where civil government and services have been disrupted, that planning should aim to reestablish a

sort of nominal or basic level of civil authority within twelve hours of an incident or attack and Continuity of Operations should be restored within 24 hours.[18] The Engineer component of any Consequence Management force is critical to this task, only they can provide the necessary, alibi temporary, infrastructure required to reestablish civil authority. Debris removal, electrical power generation and construction support to other elements (communications, sanitation, etc) are needed in the early hours of a response. The only logical method to support these time standards is to assign engineer forces for HLS on a regional basis. FEMA, who is the lead federal agency in consequence management, has the same problem of being able to respond nation wide in a timely manner. FEMA has attacked this problem by dividing the continental united states into ten FEMA regions.[19] These FEMA regions vary in size dependent on the demographics (population and infrastructure) of the region. Logically this has lead to the more densely populated regions of the nation having more, though geographically smaller, FEMA regions than the more sparsely populated regions of the country. Assigning a fixed Engineer Response Task Force to each of the ten FEMA regions has a number of advantages; primarily these are: Unity of Command, Unity of Effort and Cohesiveness. General Kernan recognized the linking of a WMD force structure to existing FEMA regions during his War College briefing of 28 November 2001. In his slide "Principles for Title 10/Title 14/Tille 32 Integration" General Kernan states that existing FEMA boundaries should be used for organizing Response Task Forces.[20]

Principles for Title 10/Title 14/Title 32 Integration

1. The Governor should retain primacy within the state. Federal forces will normally operate in support of the Lead Federal Agency when supporting state and local civil authorities.
2. National campaign against terrorism requires an integrated DOD effort from national to local levels.
3. CINC HLS will require awareness of state security and response plans and readiness of state forces to orchestrate effective DOD support to the state. The TAG should have visibility of the same for all reserve and active forces in the state.
4. CINC HLS will require a regional C2 structure to plan, coordinate and oversee the execution of DOD HLS efforts.
5. The regional C2 structure should take advantage of common, existing regional boundaries, e.g. FEMA regions. Consideration should be given to realigning FBI, DOE, and other agencies' boundaries.
6. Regional reaction forces should be developed and exercised as a hedge against unexpected HLS requirements.
7. Reaction and response plans should be established, coordinated, rehearsed and exercised.
8. Standardized plans and procedures with supporting collaborative tools must be developed.

FIGURE 5 PRINCIPLES FOR AC/RC INTEGRATION

Assigning one Engineer RTF to each FEMA region establishes a clear and consistent chain of command from the local to federal level for every MACA Consequence Management mission. The permanency of this organization allows for enhanced readiness of the unit and better-coordinated support between the local, state and federal authorities. National Guard units in the RTF will always be the first responders, initially working under the command of the governor. If the nature of the incident or disaster warrants a federal declaration of emergency, FEMA will activate a response cell and take control as the lead federal agency.[21] If additional engineer units are required of the Defense Coordinating Officer, an active duty Colonel who acts as the Liaison officer between FEMA and JFCOM, will be asked by FEMA to stand up the federal elements of the Engineer RTF. Once the RTF is activated the National Guard units will either be federalized or placed OPCON to the RTF commander. The decision to federalize the National Guard engineers will depend upon coordination between the state and FEMA. Regardless of this decision, all engineer effort in support of the incident will be controlled through Engineer RTF commander. Missions will come via the DCO and his Defense Coordinating Element (DCE) and will be based upon FEMA directives. This is a change from how consequence management operations are currently conducted. Traditionally, National Guard units would stay under state control and any federal forces (either active or reserve) would be controlled by the DCO via the DCE. While the DCO will still pass requirements from FEMA to the engineers, now all engineer units will be under a centralized command and control node. This arrangement facilitates greater unity of effort in the engineer support to HLS. With all tasks passing through one command and control node the RTF engineer can better prioritize, assign and track the engineer effort. Another key role, which will be facilitated by this command and control node, is centralized cost accounting for all engineer effort. The reimbursable nature of MACA missions will still be a reality for FEMA in the conduct of HLS missions. Operations will also be enhanced by allowing greater flexibility in engineer support by having a trained staff and unified command directing operations. The current situation would require the DCE to query both state and federal C2 nodes for a short notice requirement. The Engineer RTF provides for both Unity of Command and Unity of Effort.

Specialized Homeland Security training under this arrangement would now be focused at the Engineer RTF Headquarters. This training would consist of individual training for the Engineer RTF commander and some of his senior staff members and twice annual command post exercises, called Certification Exercises, which are organized and ran by the DCO and the

DCE in each FEMA region. The tasks performed below the headquarters element require no specialized training and mirror engineer construction and construction support units Mission Essential Task Lists (METL). Cohesiveness is one of the intangible factors that are difficult if not impossible to measure, but by having a set Engineer RTF who works together routinely, the conditions to form a cohesive, efficient organization is enhanced. If the units assigned to the Engineer RTF come from the same parent unit, then cohesiveness is easier to achieve.

WHAT UNITS NEED TO BE ASSIGNED TO THE ENGINEER RTFS

As stated in the previous portions of this paper the types of units that are optimal for the Engineer RTF should have the following traits:

- Construction or construction support engineer
- Stationed within the FEMA region, which the RTF is assigned
- Be a National Guard organization if possible

In addition to these requirements, care must be taken to minimize war time mobilization conflicts whenever possible. There will be conflict; the key here is minimizing that as much as possible. Avoiding the use of active component units is the first step in this minimization, since most of these units would deploy to a theater of war earlier than reserve component units. Avoiding high priority units, Force Support Package (FSP) 1 or 2 organizations or round out units for active duty organizations will also help in minimizing conflict. National Guard units have the highest priority for inclusion in the Engineer RTF. This is based upon their ability to respond quickly (under state orders), local chain of command and their valuable experience gained under state active duty responding to smaller disasters. A popular saying is that every disaster is a local disaster and this holds true whether responding to a flood or a WMD incident. Therefore where ever possible National Guard units, to include Air National Guard engineers, will be given the Homeland Security mission over Active Component (AC) or United States Army Reserve (USAR) units if at all possible. These constraints will drive the Engineer RTF to be a multi-component or joint organization due to the fact that none of the three components of the Corps (active, guard or reserve) have sufficient regional forces to be a "stand alone" task force. Using Army, Navy and Air Force Reserve construction engineers will further fill out the Engineer RTFs while staying within the current force structure. The use of active duty soldiers and of any reserve forces will not only require a declaration of a federal emergency, but the call up of reserve forces will also require a mobilization order. Engineer RTFs are primarily intended to respond to WMD incidents, however they could be used for traditional MACA

mission if it is severe enough to warrant it. This possibility gives the RTF two options for reserve call up, Selective Mobilization and Partial Mobilization.

Selective Mobilization – Expansion of the active Armed Forces resulting from action by Congress and/or the President to mobilize Reserve Component units, individual ready reservists, and the resources needed for their support to meet the requirements of a domestic emergency that is not the result of an enemy attack.

Partial Mobilization – Expansion of the active Armed Forces resulting from action by Congress (up to full Mobilization) or by the President (not more than 1,000,000 for not more than 24 consecutive months) to mobilize Ready Reserve Component Units, Individual reservists, and the resources needed for their support to meet the requirements of a war or other national emergency involving an external threat to the national security. [22]

Reserve units called up in the event of a domestic terrorist attack or natural disaster will use a Selective Mobilization. Partial Mobilization will be used for any attack from a foreign government or external terrorist group. The necessity for a Selective or Partial Mobilization is one of the challenges faced by DCO's in the support of FEMA. The establishment of regional Engineer RTFs with fixed units should speed up the mobilization process. Pre-coordinated RTF orders could be issued quickly to ensure timely support. This is a change to the way MACA operations now occur; however, the need for dedicated and timely support to FEMA dictates that pre-coordinated mobilization orders are kept on hand. These orders would be resident at JFCOM, and be forwarded to the President for review and signature based upon his declaration of a federal disaster or emergency. FEMA's support requirements would drive the decision to call-up reserve engineer units and be based upon the local and state authorities support requirements. At the point where the local authorities and state assets are overwhelmed, the Engineer RTF will be mobilized upon a request from FEMA to the DCO. This procedure will be different for each Engineer RTF due to the varied makeup of units in each FEMA region. It is most probable that there will be ten different mobilization requirements for the ten FEMA regions and their associated Engineer RTF. This is yet another reason to have pre-coordinated mobilization orders ready to send forward to the President for consideration. A logical staff to oversee this process would be the Joint Task Force (JTF) for Homeland Security that has been established at JFCOM.[23] The request to stand up an Engineer RTF would come from the local FEMA coordinator to the DCO, forwarded to the appropriate CONUSA to FORSCOM for consideration and then ultimately to the JTF Homeland Security at JFCOM. This drill could be exercised and refined in regularly scheduled MACA exercises, which could easily be expanded by both the 1st and 5th Army to include activation and mobilization of Engineer RTFs.

ASSIGNING THE FORCES

In the previous sections of this paper the question of what kind of engineers and where should they be assigned has been discussed. In this section actual engineer units will be assigned to Engineer RTFs in each of the ten FEMA areas. The previously discussed logic explained why construction and construction support engineers are needed to form the RTFs in each FEMA region. Army and Air Force National Guard units were given first priority followed by reserve units from all services with active forces from all services given the lowest priority. The respective component branch school or service web sites provided the unit data used in this paper.[24] [25] [26] This in no way represents a complete mission analysis, but is used as an example of how to assign forces to each of the FEMA regions following the logic presented in this paper and will determine if the current force structure is sufficient to meet the Homeland Security requirements. I will summarize each of the RTFs after describing them in the following format:

FEMA REGION I (Maine, New Hampshire, Vermont, Rhode Island, Connecticut, Mass)

ELEMENT	UNIT	STATE	COMPONENT
Engineer RTF HQ's	240th EN GRP (CONST)	Maine	Army NG
Construction BN	113th EN BN (CBT HVY)	Maine	Army NG
Construction BN	368th EN BN (CBT HVY)	NH	USAR
Construction BN	NMCB 27	Maine	USNR***
Construction BN	VACANT		
CBT SPT CO.	000 EN CO (CSC)	Maine	Army NG
Dump Truck CO.	VACANT		
Prime Power TM.	B CO, 6th PLT 249th EN BN (PP)	Mass	USAR

TABLE 1 FEMA REGION 1 ENGINEER RTF

FEMA Region 1 encompasses the six states of the New England area. An examination of available units in the region shows a preponderance of the units in the state of Maine. A Naval Marine Construction Battalion (NMCB), or Navy Sea Bee Reserve unit in New Brunswick Maine will need to be incorporated into the RTF to get a minimum of three construction battalions for the RTF. There is a shortfall of one combat heavy battalion and a dump truck company to fully man the proposed force model. However, company sized National Guard units in Vermont, Massachusetts, Connecticut and Rhode Island could be called upon if the additional assets were required. A USAR company from Massachusetts will provide the electrical power generation capability required. There are sufficient forces in FEMA 1 to form a Joint Engineer RTF.

FEMA REGION II (New York, New Jersey)

ELEMENT	UNIT	STATE	COMPONENT
Engineer RTF HQ's	411th EN BDE (TA)	NY	USAR
Construction BN	204th EN BN (CBT HVY)	NY	Army NG
Construction BN	854th EN BN (CBT HVY)	NJ	USAR
Construction BN	NMCB 21	NJ	USNR
Construction BN	VACANT		
CBT SPT CO.	770th EN CO (CSC)	NY	USAR
Dump Truck CO.	UNFILLED		
Prime Power TM.	TM 6, 249th Prime Pwr BN	NC	Active Army
Port Const CO.	000 EN CO (PC)	NY	Army NG

TABLE 2 FEMA REGION 2 ENGINEER RTF

FEMA Region 2 consists of the very densely populated states of New York and New Jersey. The majority of appropriate engineer units are from the USAR. The Navy Reserve will again be needed to obtain a minimum of three construction battalions and the active army will be needed to provide prime power from Fort Bragg, North Carolina. FEMA 2 is arguably the most experienced region in the nation in dealing with the after effects of a terrorist attack. Engineer support for the September 11th attack was predominately provided by contractors

through FEMA and the local District Engineer from the United States Army Corps of Engineers (USACE). The vast civilian construction resources found in the New York area are being used in this operation. While any future attack would probably be dealt with in a similar manner, sufficient forces are available in the event the RTF was required to deal with a contaminated area or where there was a significant threat from unexploded ordinance. The lack of available dump truck companies continues in FEMA Region 2. A port construction company was identified for inclusion in this RTF due to the vast networks of seaports in the region, which may needed immediate repairs to reopen commerce.

FEMA REGION III (Pennsylvania, West Virginia, Virginia, Maryland, Delaware, and D.C.)

ELEMENT	UNIT	STATE	COMPONENT
Engineer RTF HQ's	111th EN GRP (COST)	WV	Army NG
Construction BN	1092nd EN BN (CBT HVY)	WV	Army NG
Construction BN	463rd EN BN (CBT HVY)	WV	USAR
Construction BN	NMCB 23	VA	USNR
Construction BN	VACANT		
CBT SPT CO.	319th EN CO (CSC)	PA	USAR
Dump Truck CO.	332nd EN CO (DT)	PA	USAR
Prime Power TM.	316th EN TM (PP)	PA	USAR

TABLE 3 FEMA REGION3 ENGINEER RTF

FEMA Region 3 covers the five central states along the east cost to include Washington DC. There are sufficient forces, predominately in West Virginia and Pennsylvania, to form a Joint Engineer Task Force with a NMCB from Virginia. Maryland, Delaware and Virginia all have additional company sized units, combat support equipment companies, to provide additional assets. In addition to these forces there is an active duty engineer company, the Military District of Washington Company, stationed at Fort Belvoir, VA with the mission of providing emergency engineer support to the nations capitol.

FEMA REGION IV (Alabama, Florida, Georgia, Kentucky, Mississippi,

North Carolina, South Carolina, Tennessee)

ELEMENT	UNIT	STATE	COMPONENT
Engineer RTF HQ's	168th EN GRP (CONST)	MS	Army NG
Construction BN	202nd Red Horse Sqdrn	FL	Air Force NG
Construction BN	877th EN BN (CBT HVY)	AL	Army NG
Construction Bn	878th EN BN (CBT HVY)	GA	Army NG
Construction Bn	505th EN BN (CBT HVY)	NC	Army NG
CBT SPT CO.	269th EN CO (CSC)	FL	Army NG
Dump Truck CO.	VACANT		
Prime Power TM.	TM 5, 249th EN BN (PP)	NC	Active Army

TABLE 4 FEMA REGION 4 ENGINEER RTF

FEMA Region 4 covers the nine states of the southeastern United States. This region has an abundance of reserve component construction units from all military services. The region has two extra combat heavy battalions and three combat support equipment companies not used in the RTF. The only shortfall noted was the dump truck company, which is a scarce resource for the entire eastern U.S. and no reserve component prime power assets. FEMA 4 is a vast region, however the population is densest in the Atlanta, Georgia area and in Florida. The region also is endangered yearly by hurricanes along the Gulf and Atlantic coasts. For this reason the engineer assets of the RTF were spread throughout the area in order to provide a quick response capability which will essentially buy the necessary time to assemble the remaining units of the RTF. It should be remembered here that other engineer assets under state control would also be working an incident until the RTF is called up and on site.

FEMA REGION V (Michigan, Ohio, Illinois, Indiana, Wisconsin)

ELEMENT	UNIT	STATE	COMPONENT
Engineer RTF HQ's	416th EN GRP (CONST)	OH	Army NG
Construction BN	216th EN BN (CBT HVY)	OH	Army NG
Construction BN	863rd EN BN (CBT HVY)	IL	USAR
Construction BN	961st EN BN (CBT HVY)	WI	USAR
Construction BN	NMCB 25	WI	USNR
CBT SPT CO.	000 EN CO (CSC)	OH	Army NG
Dump Truck CO.	191st EN CO (DT)	OH	Army NG
Prime Power TM.	A/6 PLT, 249th PP BN	WI	USAR

TABLE 5 FEMA REGION 5 ENGINEER RTF

FEMA 5 covers the five Midwestern states of Michigan, Ohio, Illinois, Indiana, and Wisconsin. Major population centers include Chicago, Detroit and Milwaukee. The region has an abundance of engineer units to include one combat heavy battalion, two dump truck companies and for construction support equipment companies that were not needed to fill the model RTF. The only area with a shortage of construction engineer units is the state of Michigan, which only has one CSE Company.

FEMA REGION VI (New Mexico, Texas, Oklahoma, Louisiana, Arkansas)

ELEMENT	UNIT	STATE	COMPONENT
Engineer RTF HQ's	493rd EN GRP	TX	USAR
Construction BN	120th EN BN (CBT HVY)	OK	Army NG
Construction BN	769th EN BN (CBT HVY)	LA	Army NG
Construction BN	555th Red Horse SQD	TX	Air Force NG

Construction BN	205th EN BN (CBT HVY)	LA	Army NG
CBT SPT CO.	277th EN CO (CSC)	TX	USAR
Dump Truck CO.	352nd EN CO (DT)	TX	USAR
Prime Power TM.	TM7, 249th EN BN (PP)	NC	Active Army

TABLE 6 FEMA REGION 6 ENGINEER RTF

FEMA Region 6 covers the south central United States. Again, there is an abundance of engineer units to choose in forming a RTF. Population centers include Dallas, Houston, and New Orleans. Louisiana and Texas have a great deal of units in excess of the RTF force model and include assets from all services. Prime power however is a shortfall and a team from the active duty Prime Power battalion in Fort Bragg was identified to provide emergency power in a "fly away" mode.

FEMA REGION VII (Missouri, Kansas, Iowa, Nebraska)

ELEMENT	UNIT	STATE	COMPONENT
Engineer RTF HQ's	372nd EN GRP (CBT)	IA	USAR
Construction BN	203rd EN BN (CBT HVY)	MO	Army NG
Construction BN	891st EN BN (CBT HVY)	KS	Army NG
Construction BN	VACANT		
Construction BN	VACANT		
CBT SPT CO.	VACANT		
Dump Truck	CO.242nd EN CO (DT)	KS	Army NG
Prime Power TM.	VACANT		

TABLE 7 FEMA REGION 7 ENGINEER RTF

FEMA Region 7 covers the four states of the central Midwest; its major population centers are Kansas City and Saint Louis. There are scant engineer assets in this region to fill the Engineer RTF. There are only two combat heavy battalions available and a dump truck company currently available. Missouri and Kansas both have company sized construction units but combining them would not yield a combat heavy equivalent. Keeping this force structure assumes risk that a WMD attack will not occur in FEMA 7. There are a number of ways of

mitigating this risk; one way is the assignment of a secondary mission to support FEMA Region 7 to those units excess to the requirements in FEMA Region 6.

FEMA REGION VIII (North Dakota, South Dakota, Montana, Wyoming, Colorado)

ELEMENT	UNIT	STATE	COMPONENT
Engineer RTF HQ's	109th EN GRP	SD	Army NG
Construction BN	142nd EN BN (CBT HVY)	ND	Army NG
Construction BN	141st EN BN (CBT HVY)	ND	Army NG
Construction BN	244th EN BN (CBT HVY)	CO	USAR
Construction BN	NMCB 17	CO	USNR
CBT SPT CO.	219th Red Horse Flight	MT	Air Force NG
Dump Truck CO.	VACANT		
Prime Power TM.	VACANT		

TABLE 8 FEMA REGION 8 ENGINEER RTF

FEMA Region 8 covers the six states that cover vast areas of the Rocky Mountains and the northern plains. The major population center is the greater Denver area. The region has sufficient forces to form a Joint Engineer RTF, using a NMCB stationed at Fort Carson. In addition to the forces listed there are three Combat Support Equipment companies in Colorado and Wyoming, which have not been assigned to the RTF. In this region a Red Horse Flight (company sized unit) was used in lieu of a Construction Support Company due to the similarity of capabilities. The dump truck capacity and prime power remain major shortfalls in the RTF.

FEMA REGION VIX (California, Arizona, Nevada, Guam and Hawaii)

ELEMENT	UNIT	STATE	COMPONENT
Engineer RTF HQ's	31st NC RGT	CA	Active Navy
Construction BN	NMCB 3	CA	Active Navy
Construction BN	NMCB 4	CA	Active Navy
Construction BN	NMCB 5	CA	Active Navy
Construction BN	NMCB 40	CA	Active Navy
CBT SPT CO.	1063rd EN CO (CSC)	AZ	Army NG
Dump Truck CO.	VACANT		
Prime Power TM.	VACANT		

TABLE 9 FEMA REGION 9 ENGINEER RTF

FEMA Region 9 consists of California, Nevada and Arizona. The region consists of some of the nations major population centers and is the home of critical government and economic

resources. It is also the area of the country, which has the least number of available reserve component units to form an Engineer RTF. The force shown above is formed around the active duty Navy Sea Bee Regiment located in Port Heuneme, California. The leadership, training, location and capability of this force are optimal. However this unit represents the bulk of CINCPAC and PACOM's engineer assets. The current war on terrorism, coupled with the normal rotational schedule of the battalions means that this force may not be available for HLS missions. The use of these forces would also require an agreement between PACOM and JFCOM, which further complicates their employment. The end result of these factors is that the risk of not being able to provide engineer support to FEMA in this region is great. This risk can be mitigated by several factors. The civilian construction industry of these states is well developed and numerous, similar to the conditions found in New York. The bulk of engineer support could be accomplished via contract through FEMA and USACE. Another possible method to mitigate this risk is by conversion of existing National Guard units to construction engineers. This process will take several years and require extensive coordination among the states, FORCOM and the Joint Staff.

FEMA REGION X (Alaska, Idaho, Oregon, Washington)

ELEMENT	UNIT	STATE	COMPONENT
Engineer RTF HQ's	555th EN GRP (CBT)	WA	Active Army
Construction BN	864th EN BN (CBT HVY)	WA	Active Army
Construction BN	VACANT		
Construction BN	VACANT		
Construction BN	VACANT		
CBT SPT CO.	659th EN CO (CSC)	WA	USAR
Dump Truck CO.	VACANT		
Prime Power TM.	A CO/5th PLT 249th BN (PP)	WA	USAR

TABLE 10 FEMA REGION 10 ENGINEER RTF

FEMA Region 10 covers the northwest and Alaska. The major population center for this region is the Seattle and Tacoma area in Washington. The major issue in FEMA 10 is the same as FEMA 9, the preponderance of available units for HLS are active component units who will deploy early in the event of increased tensions or hostilities and may not even be in the region in the event of an incident. FEMA 10 does not have sufficient forces to form a RTF, even by using the active duty engineers stationed in Fort Lewis. The risk of not being able to provide

engineer support in this region is high and there are few options available in the current force structure to mitigate that risk.

CONCLUSION

The objective of this Strategic Research Paper was to help the Corps of Engineers determine the optimum engineer stationing and distribution of both active and reserve engineer forces in support of Homeland Security. The methodology used was to first define Homeland Security, determine the missions engineer forces needed to perform in Homeland Security, and then develop a force model that could accomplish these missions. The required tasks are all horizontal and vertical construction tasks coupled with the need to reestablish electrical power for Continuity of Government and Continuity of Operations. To perform these tasks with minimal special training construction and construction support units were chosen for the Homeland Security Force. The choice of these forces not only simplified the training requirements of the units but also minimized the effect that Homeland Security would have to the combat elements of our Army who were either deploying or mobilizing for deployment as no combat engineers or "sapper" units were chosen for Homeland Security. Research revealed the requirement to be able to respond to two WMD incidents simultaneously. Logic and the size of the continental United States lead to the adoption of developing regional Engineer Response Task Forces based upon the ten FEMA regions. The adoption of the FEMA region as the regional base of the Engineer Response Task Force facilitated unity of command and unity of effort in support of FEMA in the execution of Homeland Security missions. Using a modified force model for Homeland Security available forces were assigned to each FEMA region. This was done only to test the system and to determine where and what kind of shortfalls existed in the current engineer force structure. This "drill" produced the following observations:

1. Any Engineer Response Task Force must be joint and multi-component organization.
2. The Engineer Response Task Force must fall under FEMA control and receive taskings from the DCO and the DCE.
3. Since the Engineer Response Task Forces are joint and multi-component organizations, a selective or partial mobilization order must be used to activate the RTF. These mobilization orders can be pre-coordinated and held by the commander of the JTF for Homeland Security at JFCOM for submission to the Joint Staff for review and action by the President.
4. There are insufficient Prime Power units in the force structure to assign power generation assets to each RTF.

5. The distribution of Engineer Dump Truck units does not allow each RTF to have a dedicated company. However, there generally are sufficient Combat Support Equipment companies to mitigate the requirement for more Dump Truck units.

6. There is a significant lack of reserve component construction units on the west coast of the United States, which makes the engineer support to Homeland Security a high-risk operation. What forces that are available are active duty Navy and Army engineers, which could be pre-deployed or be deployed early in the response to a WMD attack on the west coast? This situation requires the formation of additional reserve component engineer construction battalions on the west coast by either reconfiguring other type units in the region or by standing down construction units in areas with excess capability to free up the spaces to re-create these units on the west coast.

The security of the United States is a critical mission of the United States Army. Engineer support for this mission requires a reorganization of our available assets and the formation or movement of other assets to regions with greater need. The good news is that the forces assigned to Homeland Security are well trained and suited to the tasks required of them. The reserve components history of Military Support to Civil Authorities has made our transition easier. Now it is up to us to organize these forces to maximize their effectiveness. This paper is offered in hope that it helps to improve our organization.

WORD COUNT = 7697

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